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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/235,387	01/22/1999	NATALIE GIROUX	T012150011US(123081-33956	4794

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EXAMINER	
NGUYEN, PHUONGCHAU BA	
ART UNIT	PAPER NUMBER
2665	

DATE MAILED: 06/24/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/235,387	GIROUX ET AL.	
	Examiner	Art Unit	
	Phuongchau Ba Nguyen	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14 and 25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14 and 25-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

2. Claims 26-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Awdeh (5,754,530).

Claim 26

Awdeh (5,574,530) discloses a method of transmitting non-real time across a core connection-oriented communication network, comprising:

a) establishing an end to end connection between a source node (SW0) and a destination node (SW1) respectively at an edge of said core network, said connection having a maximum usable bandwidth (Allowed Cell Rate-ACR, col.2, lines 19-22) and a minimum guaranteed bandwidth (Minimum Cell Rate-MCR, col.2, 28-31);

b) at said source node, dynamically mapping all non-real time traffic flows for said destination node to said connection, based on a service category of each traffic flow of said non-real time traffic flows and a minimum guaranteed transmission rate for said connection (fig.4, col.7, lines 44-54);

c) aggregating all said non-real time traffic flows (plurality of sources A, B, C, D) into an aggregated traffic flow (single flow from SW0 to SW1-fig.4) by distributing the minimum guaranteed bandwidth of said connection among non real time traffic flows such that said each non-real time traffic flow receives a share of said minimum guaranteed bandwidth (col.2, lines 28-31);

d) dividing any remaining bandwidth following said distribution of the minimum guaranteed bandwidth available on said connection among said non real time traffic flows according to a fairness policy (col.2, lines 28-52; col.3, 25-55); and

e) routing said aggregated traffic flow along said connection toward said destination node, without differentiating among said non-real time traffic flows at any core node in the connection (col.2, lines 19-31).

Claim 27,

Awdeh discloses wherein one service category of one traffic flow of said non real time traffic flows is selected from CBR/rt-VBR, nrt-VBR, UBR and ABR (col.1, line 54-col.2, line 41).

Claim 28,

Awdeh discloses wherein the ABR service category supports:

A minimum cell rate (MCR) guarantee representing a static bandwidth required for the network to achieve a quality of service guarantee for constituent traffic flows (col.4, lines 10-11);

Dynamic bandwidth allocation allowing access to unused bandwidth in the network for ABR and UBR VCCs (col.4, lines 30-32); and

Network fairness through explicit rate (ER) bandwidth allocation (col.3, line 65-col.4, line 2).

Claim 29,

Awdeh discloses wherein the fairness policy performs flow control utilizing feedback information (backward RM cell) from the destination node for dividing said any remaining bandwidth (col.2, lines 11-31).

Claim 30,

Awdeh discloses wherein flow control is explicit rate (ER) flow control (col.3, lines 59-col.4, line 6; col.4, line 54-col.5, line 43).

Claim 31,

Awdeh discloses wherein division of said any remaining bandwidth is dynamically adjusted based on feedback from specific core nodes (col.7, line 61-col.8, line 12; col.11, line 64-col.12, line 60).

Claim 32,

Awdeh discloses wherein the connection is segmented due to flow control fragmentation (col.12, lines 44-60).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-5, 10-13 and 25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awdeh (5,754,530) in view of Carr (6,163,542).

Regarding claim 1:

Awdeh (5,754,530) discloses a method for transmitting non-real time traffic (ABR) in a communications network (fig.4), the network comprising a network core which includes a core source (A, B, C, D, E) and a core destination (A, B, C, D, E), the core source and the core destination having a path therebetween (the inter-switch link, fig.4), the path having one of a plurality of classes of transmission service (ABR), the non-real time traffic (ABR) being received at the core source (A, B, C, D, E) from a plurality of connections, the method comprising the steps of:

(a) at the core source, aggregating onto the path and into an aggregate traffic stream the non-real time traffic received from said plurality of connections

(via SW0, fig.4), the non-real time traffic being transmitted on the path as the aggregate traffic stream without regard to which of the plurality of connections the non-real time traffic is associated and without regard to the class of transmission service of such plurality of connections {fig.4, col.15, lines 53-55, 59-60};

(b) at the core destination, segregating the aggregate traffic stream so transmitted on the path according to which of the plurality of connections the non-real time traffic is associated (via SW1, fig.4){col.15, lines 55-57};

wherein flow control is applied to said aggregate traffic stream between the core source and the core destination to thereby regulate the rate of transmission of the non-real time traffic along the path the flow control terminating at said core source and at said core destination and wherein the path is provisioned with a guaranteed transmission bandwidth {col.15, lines 59-63}.

Awdeh does not explicitly disclose aggregating onto the path and into an aggregate traffic stream, and flow control is applied on the aggregate traffic stream; and each of the plurality of connections having one of the plurality of classes of transmission service, wherein at least two of the plurality of connections do not respectively have a same class of transmission service. However, Carr (6,163,542) discloses that the components VCCs are aggregated at the input to the VPC, and a shaper which polices traffic on the VPC (col.2, line 64 to col.3, line 27, see fig.2). Therefore, it would have been obvious to an artisan to apply Carr's teaching to Awdeh's system with the

motivation being to provide fair share arbitration between aggregating virtual channel connections while shaping multi-service category cell traffic onto virtual path connections.

Regarding claim 25:

Awdeh discloses a communications network (fig.4) comprising a network core wherein traffic entering the network core is aggregated (via SW0,fig.4) from a plurality of connections (A, B, C, D, E) onto aggregate traffic streams {col.15, lines 59-60} within the network core and wherein traffic exiting the network core is segregated (via SW1, fig.4) from said aggregate traffic streams onto connections (A, B, C, D, E) outside the network core, the traffic comprising non-real time traffic, the non-real time traffic which enters the network core and is aggregated onto a aggregate traffic stream (inter-switch link) is received from connections (A, B, C, D, E), and the non-real time traffic being aggregated into respective non-real time aggregate traffic streams {col.15, lines 59-60}, each of the non-real time aggregate traffic streams having one of the plurality of classes of transmission service, and wherein flow control is applied between the core source and the core destination corresponding to each non-real time aggregate traffic stream to thereby regulate the rate of transmission of the non-real time traffic along each said non-real time aggregate traffic stream, the flow control terminating at said core source and at said core destination corresponding to each non-real time aggregate traffic stream (fig.4).

Awdeh does not explicitly disclose that the traffic comprising real time traffic and non-real time traffic, that each have one of a plurality of classes of transmission service such that at least two connections have classes of transmission service different from each other, the real time traffic being aggregated onto respective real time aggregate traffic streams, each of the non-real time aggregate traffic streams having one of the plurality of classes of transmission service, each of the non-real time aggregate traffic streams is provisioned with a guaranteed transmission bandwidth, the real time traffic on each real time aggregate traffic stream being transmitted from a corresponding core source to a corresponding core destination according to a first class of aggregate traffic stream transmission service and the non-real time traffic on each non-real time aggregate traffic stream being transmitted from a corresponding core source to a corresponding core destination according to a second class of aggregate traffic stream transmission service.

However, in the same field of endeavor, Carr discloses that the traffic comprising real time traffic (CBR, VBR) and non-real time traffic (ABR, UBR) (col.3, lines 14-27), that each have one of a plurality of classes of transmission service such that at least two connections have classes of transmission service different from each other (col.3, lines 14-27, real time such as CBR and VBR, and non-real time ABR and UBR), the real time traffic and the non-real time traffic each being aggregated onto respective real time aggregate traffic streams and non-real time aggregate traffic streams {since the non-real time and real time data being applied to Awdeh's system, thus both non-real time and real time being aggregated by SW0 onto inter-switch link, col.15, lines 59-60 in

Awdeh, emphasis added}, each of the non-real time paths having one of the plurality of classes of transmission service (thus, each non-real time such as ABR or UBR was being transmitted on a particular of VC of the inter-switch link, col.15, lines 59-60 in Awdeh, emphasis added), each of the non-real time paths is provisioned with a guaranteed transmission bandwidth, the real time traffic on each real time aggregate traffic stream being transmitted from a corresponding core source to a corresponding core destination according to a first class of aggregate traffic stream transmission service and the non-real time traffic on each non-real time path being transmitted from a corresponding core source to a corresponding core destination according to a second class of aggregate traffic stream transmission service {col.2, line 64-col.3, line 27}.

Therefore, it would have been obvious to an artisan to apply Carr's teaching to Awdeh's system with the motivation being to provide a guarantee bandwidth for higher priority data (real time, CBR or rt-VBR) over the lower priority data (non-real time, ABR or UBR).

-As Claim 2, Awdeh discloses an ATM network {abstract, line 1}, the non-real time traffic is ATM traffic and plurality of classes of transmission service are ATM service categories {abstract, lines 1-3, col.10, lines 5-14}, the plurality of connections are Virtual Channel Connections (VCCs)s {col.15, lines 59-60}. Awdeh does not explicitly disclose the path is a non-real time Virtual Path Connection (VPC). However, in the same field of endeavor, Ma (5,953,338) disclose that the path is a non-real time Virtual Path Connection (VPC) {fig.6, col.1, line 66 to col.2, line 38}. Therefore, it would

have been obvious to an artisan to apply Ma's teaching to Awdeh's system with the motivation being to provide a specific path for transferring a specific type of data (i.e., non-real time on the non-real time virtual path) across the virtual connections between ATM switches {col.11, line 59-col.12, line 14; fig.6, Ma}.

-As claim 3, Awdeh further discloses wherein the flow control applied between the core source and the core destination includes a flow control algorithm whereby the rate of transmission of the non-real time traffic on the path is regulated by providing feedback information to the core source concerning congestion at a contention point on the path {col.2, line 4-col.3, line 55; col.6, lines 60-65}.

-As claim 4, Awdeh further discloses wherein the flow control applied between the core source and the core destination includes a flow control algorithm whereby the rate of transmission of the non-real time traffic on the path is regulated by providing an explicit rate of transmission to the core source {col.5, line 11-col.6, line 22; col.6, line 66-col.7, line 10; col.7, line 64-col.8, line 12}.

-As claim 5, Awdeh further discloses wherein the non-real time Virtual Path Connection operates according to an Available Bit Rate (ABR) service category {col.13, lines 36-46}.

-As claim 10, Awdeh further discloses wherein the core source to core destination flow control applied between the core source and the core destination is provided by a plurality of ABR flow control segments between the core source and the core destination {col.2, lines 4-52}.

-As claim 11, Awdeh further discloses wherein the core source further comprises a set of queues each corresponding to one of the plurality of classes of transmission service that are associated with the plurality of connections, and wherein the non-real time traffic received over said each of the plurality of connections is queued in the queue associated with the class of transmission service associated with each connection before aggregating the non-real time traffic onto the path {col.10, lines 5-14}.

-As claim 12, Awdeh further discloses wherein the core source further comprises a queue for said each of the plurality of connections and wherein the non-real time traffic received over said each of the plurality of connections is queued in the queue associated with the connection before aggregating the non-real time traffic onto the path {col.10, lines 5-14}.

-As claim 13, Awdeh further discloses wherein traffic management is applied to the non-real time traffic at said core source {col.2, lines 4-col.7, line 40-col.8, line 4}.

5. Claims 6-9 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Awdeh (5,754,530) in view of Carr (6,163,542) as applied to claims 1-5, 10-13 above, and further in view Fan (6,324,165).

-As claim 6, Awdeh does not explicitly disclose wherein at least one of the plurality of connections aggregated onto the path is provisioned with a guaranteed bandwidth and the guaranteed transmission bandwidth of the path is obtained by summing the guaranteed transmission bandwidths for the at least one of the plurality of connections aggregated onto the path. However, in the same field of endeavor, Fan (6,324,165) further disclose wherein at least one of the plurality of connections aggregated onto the path is provisioned with a guaranteed bandwidth and the guaranteed transmission bandwidth of the path is obtained by summing the guaranteed transmission bandwidths for the at least one of the plurality of connections aggregated onto the path {col.9, lines 1-37}. Therefore, it would have been obvious to an artisan to apply Fan's teaching to Awdeh's system with the motivation being to avoid interruption in data transmission of real-time data (i.e., CBR), which has priority over the non-real time data (i.e., ABR).

-As claim 7, Awdeh does not explicitly disclose wherein the guaranteed transmission bandwidth for the at least one of the plurality of connections is a guaranteed minimum transmission bandwidth and the guaranteed transmission bandwidth for the path is a guaranteed minimum transmission bandwidth. However, in the same field of endeavor, Fan (6,324,165) further discloses wherein the guaranteed

transmission bandwidth for the at least one of the plurality of connections is a guaranteed minimum transmission bandwidth and the guaranteed transmission bandwidth for the path is a guaranteed minimum transmission bandwidth {col.9, lines 23-25}. Therefore, it would have been obvious to an artisan to apply Fan's teaching to Awdeh's system with the motivation being to provide guarantee data transmission of the real-time data (i.e., CBR) even under congestion conditions {also, col.9, lines 23-35}.

-As claim 8, Awdeh does not explicitly disclose wherein transmission bandwidth in the network core is allocated between real time traffic and non-real time traffic, and wherein a share of the transmission bandwidth in addition to the guaranteed minimum transmission bandwidth for the path is made available to the path if the transmission bandwidth allocated to the real time traffic is unused. However, in the same field of endeavor, Fan (6,324,165) further discloses wherein transmission bandwidth in the network core is allocated between real time traffic and non-real time traffic, and wherein a share of the transmission bandwidth in addition to the guaranteed minimum transmission bandwidth for the path is made available to the path if the transmission bandwidth allocated to the real time traffic is unused {col.9, lines 25-28, 42-51}. Therefore, it would have been obvious to an artisan to apply Fan's teaching to Awdeh's system with the motivation being to ensure the transmission of real-time data (i.e., CBR) even under congestion conditions without interruption.

-As claim 9, Awdeh does not explicitly disclose wherein a share of the transmission bandwidth in addition to the guaranteed minimum transmission bandwidth for one of the plurality of connections is made available to the one of the plurality of connections if the transmission bandwidth allocated to another of the plurality of connections is unused. However, in the same field of endeavor, Fan (6,324,165) further discloses wherein a share of the transmission bandwidth in addition to the guaranteed minimum transmission bandwidth for one of the plurality of connections is made available to the one of the plurality of connections if the transmission bandwidth allocated to another of the plurality of connections is unused {col.9, lines 46-48}. Therefore, it would have been obvious to an artisan to apply Fan's teaching to Awdeh's system with the motivation being to maximize the bandwidth utilization.

-As claim 14, Awdeh does not disclose wherein the traffic management comprises scheduling of the plurality of connections onto the path. However, in the same field of endeavor, Fan discloses wherein the traffic management comprises scheduling of the plurality of connections onto the path {col.3, lines 24-53; fig.3; col.7, lines 58-59; col.9, lines 23-25, 44-46; col.9, line 65-col.10, line 23}. Therefore, it would have been obvious to an artisan to apply Fan's teaching to Awdeh's system with the motivation being to ensure that each queue (input) flow receives its minimum guaranteed rate and hence the QoS is guaranteed for all connections within the flow.

Response to Arguments

6. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchau Ba Nguyen whose telephone number is 571-272-3148. The examiner can normally be reached on Monday-Friday from 10:00 a.m. to 2:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on 571-272-31556602. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571-272-2600.

Phuongchau Ba Nguyen
Examiner
Art Unit 26655

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